DOCUMENT RESUME

ED 292 238 EC 202 020

AUTHOR Kachelhoffer, P. M.
TITLE The Gifted: Fiction and Reality of Their Teaching in Tertiary Education.
PUB DATE Jun 84
NOTE 17p.; Paper presented at the International Conference: Education for the Gifted "Ingenium 2000" (Stellenbosch, Republic of South Africa, June 26-29, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Ability Identification; *Cognitive Development; *Educational Change; Elementary Secondary Education; Foreign Countries; *Gifted; Independent Study; Individualized Education Programs; Postsecondary Education; *Program Development; Teaching Methods
IDENTIFIERS *South Africa (Transvaal)

ABSTRACT

This paper reviews the current status of gifted education in South Africa and makes recommendations for improvements. Characteristics of the gifted and procedures for identifying gifted children are described, emphasizing the importance of identifying the gifted as early as possible. Provisions for differentiated gifted education, as currently implemented in the Transvaal, are outlined along with programs which could be developed. Research on cognitive development is examined, and the impact of the research on educating gifted students is explored. Recommended strategies for accommodating the gifted in tertiary education focus on individualized educational programs, independent learning, and effective teaching. (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED292238

THE GIFTED: FICTION AND REALITY OF THEIR TEACHING IN TERTIARY EDUCATION

P M KACHELHOFFER

UNIT FOR TEACHING DEVELOPMENT

UNIVERSITY OF PRETORIA

PRETORIA

0002

S O U T H A F R I C A

Subject category: Universities' role in the education of the gifted.

Statement: Neither this paper nor any version close to it has been, or is being, offered for publication. The paper will be presented orally at Ingenium 2000 by the author.

P M KACHELHOFFER

P M Kachelhoffer

EC 202220

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

P. M. Kachelhoffer

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

THE GIFTED: FICTION AND REALITY OF THEIR TEACHING IN TERTIARY EDUCATION

P M KACHELHOFFER

UNIT FOR TEACHING DEVELOPMENT

UNIVERSITY OF PRETORIA

1 THE PROBLEM

The gifted, as a subject for discussion, in the Western world really came to the fore especially in America, after Russia's launching of Sputnik in 1957. Since the mid-seventies South Africa in its turn endeavoured to accommodate the gifted effectively in the educational system. Momentum has been given to this process because of the realization that the gifted, in the same manner as the handicapped, cannot be accommodated effectively by ordinary mainstream education. There are probably too many gifted students who are in terms of prospective highly skilled manpower and leadership potential, too precious for any country to be neglected.

A big headache that challenges educationalists is to define *giftedness* in such a way that it will be scientifically and universally acceptable. It is ac= cepted that the necessity exists for agreement on uniform characteristics in or= der to identify the gifted student for whom specific curriculum development must be undertaken in order to realise his potential. The confusion that exists around identifying this group is clear from the terminology used to describe this group, for instance the gifted, the highly gifted, genius, talented, brilliant and creative persons. The number of people that belong to this group is not known for certain either and that makes it difficult to plan educationally for them. According to the HSRC investigation into education (13) it can be accepted that about 2-3% of all children are "highly gifted". Neethling (22) pointed out that 3-5% of the regular school population qualifies as exceptionally gifted.

A practical way in which the gifted are identified in South Africa, is by means of measured IQ. Neethling (22) provided the following useful table:

IQ	Number of children	Classification
115 - 130	13,59%	Superior
130 - 145	2,14%	Gifted
145	± 1 per 1000)	Highly gifted
160	± 1 per 10000)	
168	± 1 per 100000)	
180	± 1 per 1000000)	

Identification of the gifted in accordance with IQ, is based on the assumption as mentioned by Hattingh (11) that the IQ-test given its shortcomings remains the most suited to identify the gifted student. In practice thus, all children in the IQ-range of 120 +, is seen as potentially gifted (11). Special educational attention should be directed towards the identified gifted, inter alia a system of differentiated education. The term "potentially gifted" is used because the measured IQ-figure alone does not guarantee giftedness. By identifying a child as gifted, one is actually making a prediction in the sense that the child has the ability to act exceptionally and perform well in future (9). According to Morgan et al (21), Renzulli provided us with a very useful model to identify the gifted. In accordance with this model the gifted distinguishes himself from the non-gifted by a combination of the following three characteristics: *above average intelligence (IQ)*, *motivation to complete a task* and *creativity*. Certain characteristics are thus essential in addition to intelligence for identifying the gifted. The 120 cut-off point on the IQ-scale is probably a result of the observation that few gifted creative people are found below the IQ-range of 120. Hattingh (11) quotes Freeman who argues that:

> ... *whereas a high IQ does not guarantee high creativity a low IQ certainly militates against it.* (See (1) as well).

It is obviously not sufficient to identify the gifted merely by means of intelligence. The American Congress accepted that gifted children, who are submitted to

differentiated educational programs, are those children that are identified by qualified professionals as being children that have the potential to perform exceptionally in one or a combination of the following areas:

- General intellectual ability
- Specific intellectual or academic ability
- Creative or productive capacity
- Leadership potential (Psycho-social ability)
- Visual or performing arts ability
- Psychomotoric ability (21, 1, 22).

The gifted should therefore be identified by a combination of quantitative and qualitative evaluations to get as near as possible to an objective and valid identification (9).

The abovementioned identifying problems are of specific significance for tertiary education and especially the university. The university has to produce professionals (for instance teachers) whose responsibility it will be to identify and educate gifted children. Furthermore, the university is responsible for part of the total curriculum that the gifted has to follow. It is accepted that it is too late to identify the gifted for the first time when he enters tertiary education (1). It is accepted that the gifted must be identified at pre-secondary level, submitted to enrichment programmes during the remaining school years and cultivated to the full at tertiary level.

Because of South Africa's urgent need for highly skilled manpower, it is essential that attention to the special educational needs of the gifted should be enhanced. It is necessary not only because of the didactic principle of individualizing but also as a result of pragmatic reasons that the gifted's potential should be fully cultivated. They are the people that make new discoveries possible, are leaders of the future, act creatively and keep prosperity flourishing. Notwithstanding courages efforts, especially by provincial education departments, the gifted are still largely neglected in South Africa (23). A study undertaken by the HSRC in 1980 with regard to the intellectual superior boy endorse the abovementioned statement with the following conclusions:

- Poor academic performance is more common amongst intellectually superior boys than boys with an average IQ.
- Because of their poor performance potentially highly skilled manpower is lost because these boys leave school early, those who do pass Standard ten do not enter for tertiary education and those who do enter tertiary education fail to finish.
- Of the group of boys with superior IQ's, 48,3% were poor performers (27).

It is quite clear that secondary education at present do not implement a differentiation system that is *successful* in accommodating the gifted and in avoiding frustration, poor performance and drop-outs. Tertiary educational institutions are also not free of guilt. The gifted should be assisted to actualize his full potential at these institutions. Often this does not happen as the quotation from Terman by Becktell (1) indicates:

> ... *on entering college a good many (of the gifted) lose interest and make poor to mediocre records.*

Universities especially are seen as the leaders in the educational field, but despite this they do very little to act as extracurricular centres to help develop gifted children. Even in teacher training little time is spent on studying the gifted, let alone teaching the gifted. In this regard it can be mentioned that it is well known that due to lack of training, the didactic techniques of lecturers are generally questionable. Failures, especially of first year students, are sometimes ascribed to this situation. What is worrying however is that even intellectually superior students that performed well at school, fail their first year (27).

By way of conclusion then, it seems wise to identify the gifted as early as possible. These pupils should then follow some enrichment programmes during their school years to develop their potential. Because these pupils represent a country's prime human potential, it should be the ideal that they all enter tertiary education where their full potential can be developed. A major problem in educating the gifted is that it is fictitiously assumed that tertiary education always succeeds in providing highly skilled manpower of quality. It is simply accepted that tertiary education creates the necessary challenges that will fulfil the needs of the gifted.

The reality in fact is that the higher intellectual capabilities that are needed for scientific performance, which is actually the interest field of the gifted, are not always sufficiently developed at tertiary educational institutions. This has far reaching implications for the creation of highly skilled manpower.

2 PROVISION FOR THE GIFTED

After travelling abroad, Jooste (14) stated that in practice very little is done for the gifted in America. This is probably because of the Americans' sensitivity for discriminating practices ... *the anti-elitist ideology* ... (2). Despite this, a lot of theoretical work is mentioned in American literature on acceleration of gifted children, individualized study programmes and early enrollment at tertiary educational institutions (19, 24). It seems clear that although the Americans have their own problems in practice, in theory at least, they do accept the principle of individualized education. According to Jooste (14) Europe on the other hand mostly applies rigid educational systems with special accent on evaluation. Acor= ding to him the gifted there receives ample opportunity to prove themselves and rise above their mediocre colleges.

In three years' time in the late fifties the amount of research literature on the gifted surpassed the literature that was published in the past thirty years on that subject. In 1979 however, only 1/400 of the amount of money spent on the handicapped was spent on the gifted (2).

Since the mid-seventies South Africa provided for the gifted by means of implementing a differentiated educational system. This is probably a better pro= vision than a system of homogeneous grouping of the gifted for instance in separate schools, which might create social and economic problems. It is also very diffi= cult, as shown earlier, to identify which children should be included and which excluded from a program especially for the gifted.

Possible ways in which provision can be made for the gifted and from which a selection could be made are:

- Special schools
- Magnet schools

- Magnet classes
- Magnet subject grouping
- Temporary withdrawel
- Extracurricular centres
- Acceleration
    + Early school admission
    + Standard acceleration
    + Subject acceleration
    + Advanced (early) enrollment (22).

Abovementioned possiblities surely pose some solution to accommodation for the gifted. This is however subject to the condition that the problems surrounding homogeneous grouping and identifying the gifted can be overcome. The following system of differentiated education is implemented in the Transvaal:

- Ordinary schools
    + Different fields of study
    + Different levels on which a subject is presented (for instance higher and standard grade)
        * Gifted children can take seven or more subjects
        * Gifted children can take all their subjects on the higher grade
- Provisions for specifically gifted children
    + Schools for art, ballet and music
    + Extracurricular centres, inter alia for music
    + Extracurricular centres for the intellectually gifted
    + Leadership courses (14, 6).

The abovementioned system is probably less vulnerable to the dangers of homgeneous grouping and identifying the gifted. This system however is in danger of overloa= ding the gifted with too much learning material. The gifted is not in need of the increased volume of learning materials, but emphasis should rather be placed on a qualitative diversification of learning content (22). It is questionable whether the differentiation of a subject on different levels or grades (for instance in the Transvaal where a subject can be taken on the higher on standard grade) in practice

really boils down to any qualitative difference. Does this really provoke students' higher intellectual capabilities in terms of Bloom's (3) cognitive domain? The key to success in handling the education of the gifted most probably lies in the *qualitative* difference of the learning material that is presented to them. This aspect will now receive more attention.

3 RESEARCH ON COGNITIVE DEVELOPMENT

Renzulli (26) indicates that with the possible exception of identification of the gifted, identifying and describing qualitative learning materials for the gifted, is a major concern in literature. From a practical point of view it is logical to assume that the ordinary class teacher and lecturer will have to be responsible for making the qualitative differentiation to accommodate most of the gifted students (33). To accomplish this, teachers and lecturers will have to be specially trai= ned. Morgan et al (21) and Neethling (22) pointed out that implementing enrich= ment programmes that are specifically developed for gifted students can with much success gradually be introduced to all students.

The principles underlying qualitative differentiation can partly be found in learning theories and models such as that of Guilford, Williams and Bloom (11). Bloom (3) especially put forward an acceptable and very practical theory in this respect.

According to the CUP (5) the university has the following responsibilities:

- Educate students to think critically.
- Equip students with the intellectual ability to generate knowledge on their own.
- To give students a functional education that will enable them to apply their knowledge immediately. It must however be kept in mind that the university educate the top intellectual students from the community and that these people will act as the future leaders in a rapidly changing world. They must therefore be equipped with the intellectual ability to solve new problems that might occur. Basic facts and principals that are lasting must therefore be taught.

Many authors agree that students should be equipped with the following abilities:

- Critical thinking
- Problem solving
- Creative performance
- Mastering the structure of the disciplines
- Understanding the basic principals at the heart of the subject matter (rather than simply learning facts and associations)
- Scientific methods
- Becoming outonomous learners (7, 2, 22).

Performance in the abovementioned activities depends on a person's mobility in utilizing the six levels of cognitive abilities which Bloom (3) describes for the *cognitive domain*. According to Neethling (22) all students will probably manage objectives stated on the *knowledge*, *comprehension* and *application* levels. Gifted students will probably master these levels with very little educational help. It is however only the gifted student that will probably effectively manage the *analysis*, *synthesis* and *evaluation* levels. Gifted students really distinguish themselves from the non-gifted when they are challenged at this higher levels of cognitive activities. Teachers and lecturers should therefore be knowledgeable as to how to teach learning materials on these higher levels.

Educating students to become scientists in their own right, is in fact based on developing the higher cognitive or intellectual abilities as described by Bloom (3). It is generally but unfortunately fictitiously assumed that these abilities are purposely developed at university. In reality however research in this respect leads one to realize the contrary (15, 12). An acute deficiency exists in this respect especially in university teaching. In a somewhat exaggerated statement one could declare that probably less than one percent of lecturers are aware of Bloom's work (3) or Mager's (18) proposals for formulating educational objectives (20). The principles put forward in these works will therefore probably not be utilized in their teaching. Findings supporting the above statement emanated from a study I undertook (15). 2645 examination questions representing ten faculties at the University of Pretoria, were analysed in terms of the six levels of Bloom's cog=

nitive domain (3). The questions analysed were all taken from *written* examination papers set on the final or highest pregraduate level of a subject (for instance History III and Physics III). *It was found that only 6% of the questions analysed evaluated abilities on the higher cognitive levels in these final exams.* Helm (12) reported similar findings after analysing action verbs used in examination papers. According to him the verbs that are most frequently used are those that evaluate the lower cognitive abilities namely reproduction of information, comprehension and application and not the higher cognitive abilities namely analysis, synthesis and evaluation. Even postgraduate examination papers for the greater part used verbs that evaluated only the reproduction of information. The importance of the lower cognitive abilities are by no means underestimated but it is unfortunate that emphasis is placed on these lower cognitive abilities. Together with Renzulli (24) it is believed that students:

> ... *must put in some "quality time" on the so called lower mental processes -- plain old knowing and understanding.*
>
> ... *knowledge is important, and comprehension is necessary not as ends in and of themselves, but as stepping stones to the more creative and productive endeavours* ...

Tertiary education and especially university education cannot afford to stagnate in developing only the lower cognitive abilities of gifted students. According to Spargo (28) only about a quarter of the white children in the RSA who start in Standard six, eventually enter university. If one take screening processes into account (Standard ten exam and first year drop-out) one can assume that most of the students at university might be gifted -- especially if Renzulli's three-circle description of giftedness is taken into account, namely that gifted students command:

- *Above average ability.*
- *Creativity.*
- *Task commitment leading to a product.*

Most of these students should therefore gain through an educational program that takes into account all six levels of Bloom's cognitive domain. Truly gifted students

will however distinguish themselves from the less-gifted by submitting better quality work resulting from the higher cognitive activities. The less-gifted will however gain from such a program and reach a higher level of effectiveness (Bloom (4) recommends: ... *provide higher mental process learning experiences for all students*). The truly gifted, who distinguish themselves in the higher cognitive activities, are those students that should preferably continue with post-graduate studies.

An educational approach that takes Bloom's classification (3) into account do not really need to face the crisis of identifying the gifted. If teaching does indeed spans the complete spectrum of cognitive abilities, the intellectually gifted will identify himself. At present however teaching is probably not of such a nature that these principles are applied in teaching. This, in my opinion, is an acute deficiency that needs urgent attention.

The question now arises in what way one can accommodate the gifted effectively without neglecting the ordinary student.

4 ACCOMMODATING THE GIFTED IN TERTIARY EDUCATION

In my opinion the problem can be solved by accommodating the gifted in individualized educational programmes (not meaning a one-to-one situation). This can be done to some extent in secondary education but education at tertiary level is especially suited for this approach. This is an uncommon and sometimes radical idea to people who are used to the traditional and rigid classical system. In implementing such a system priority should be given to:

- Training teachers and lecturers in this respect and
- the development of individualized educational programmes (23, 11).

Stewart (29) pointed out that the gifted prefer to learn in an independent way. Individualized study (project education according to Van der Stoep and Louw (31) can therefore be directed by means of study manuals. Learning objectives (on all six the cognitive levels), that occur in study manuals, can then be set for students to guide their study in a systematic and organized way. Gifted students can be led by lecturers to become ever increasing independent learners. According to Neeth-

ling (22) the way in which learning and thinking take place, is often more im= portant to the gifted than the specific study materials that are mastered. Ren= zulli (24) stated that:

> *... one of the easiest ways that we can escalate the level of the gifted person's learning environment is to escalate the ways in which he or she goes about selectively retrieving, managing and using various types of in= formation in the process of firsthand discovery and creativity.*

In respect of independent learning and above all effective teaching, it is advisable to explore Renzulli's *triad-model*, the principle of heuristic or explorative lear= ning and the inductive procedure (31). These principles will not be discussed in detail but they do represent a movement away from mere memorising factual infor= mation in favour of utilizing the higher thinking processes. According to Morgan et al (21) gifted students should rather be taught to generate knowledge than simply be sofisticated absorbers of knowledge.

The future is going to demand more individualized teaching from us, not on= ly to accommodate the gifted, but because educational approaches of late (for in= stance computer assisted instruction, utilizing information resources to the full and study manuals) prove traditional educational practices to be outdated. The teacher and lecturer should become less of a one-way distributor of knowledge (for which there is in any case enough media available, time being too restricted and the explosion of information too great and rapid) but rather a manager of the student's learning. with individualized teaching programmes every student can work more or less at his own pace, apply his own creative abilities and the gifted will identify himself as that student who produces better qualitative work, especially on the higher cognitive levels. Individualized teaching programmes eliminate the problems of identifying the gifted as well as the probable socializing problems that might accompany it. It is also questionable why efforts should be doubled to create additional enrichment programmes for the gifted only. Time could be more productively spent on creating enrichment programmes (which in my opinion are actually only programmes that are didactically speaking on standard) for all students. All students will gain through this and the gifted will identify him=

self by means of the quality learning that occurs, especially on the higher cog= nitive levels. Such a system will accommodate the gifted in a meaningful way without, in my opinion, placing an extra burden (extra enrichment work) on his shoulders. Individualized teaching programmes compensate specifically for the intellectually gifted. Within a differentiated educational system provision can still be made for the specifically gifted by means of extracurricular centres for instance for music and all the other extramural activities that occur normally at educational institutions.

Effective training of teachers and lecturers and the development of proper individualized teaching programmes seem necessary to accommodate the gifted in a meaningful way and to improve the standard of teaching that is generally taking place.

5 CONCLUDING REMARKS

Individualized teaching programmes that specifically attend to the complete spec= trum of Bloom's cognitive levels, are in reality necessary for the teaching of the gifted in primary, secondary but especially in tertiary education. With this the foundation for effective teaching is laid and some general problems will be avoided like:

- identifying the gifted at all cost,
- creating additional work by designing enrichment programmes exclusively for the gifted and
- to be hampered by possible sosializing problems that might be created by this elite group.

A problem with individualized teaching programmes that one is aware of and that will bring drastical changes in the present setting if implemented, is the fact that one will have to create concurrent individualized learning *opportunities* and *evaluation* (see the Keller plan). Such an approach will demand proper manage= ment from lecturers but it is not an insurmountable problem. The results will be worth while. Lecturers, especially at university, should seriously attend to this matter because of the demands that the future will make on highly skilled manpower.

B I B L I O G R A P H Y

1 Becktell P J The effect of freedom on the learning of gifted nursing students. *Journal of nursing education*, vol 20, no 9, November 1981, pp 24 - 30.

2 Behr A L Educating the gifted student. Some psycho-didactical consideration. *Bulletin for academic staff*, vol 4, no 1, 1983, pp 27 - 43.

3 Bloom B S (Ed) *Taxonomy of educational objectives. The classification of educational goals. Handbook 1: Cognitive domain.* David Mc Kay, New York, 1956.

4 Bloom B S New views of the learner: Implications for instruction and curriculum. *Education leadership*, April 1978, pp 563 - 576.

5 Committee of University Principals. aims of university study, the content of university curricula and student counselling. *Newsletter*, no 2.1, April 1977, pp 1 - 4.

6 Craig J K Die hantering van die begaafde kind. *Suid-Afrikaanse tydskrif vir die Pedagogiek*, vol 13, nr 2, 1979, pp 43 - 54.

7 Gallagher J J *and* Weiss P *The education of gifted and talented students: A history and prospectus.* Council for basic education, Washington DC, 1979.

8 Haasbroek J B Die identifisering van hoogbegaafde leerlinge. *Onderwysbulletin*, jrg 25, nr 2, Augustus 1981, pp 11 - 24.

9 Hagen E *Identification of the gifted.* Teachers College, Columbia university, New York and London, 1980.

10 Hall E G *and* Skinner N *Somewhere to turn. Strategies for parents of gifted and talented children.* Teachers College, Columbia university, New York and London, 1980.

11 Hattingh D L Argumente rondom 'n uitgangspunt betreffende kurrikulering vir die hoogbegaafde. *Pedagogiek joernaal*, vol 2, nr 2, sj, pp 42 - 62.

12 Helm C A G *Werkwoorde vir vraagstelling in eksamenvraestelle.* 'n Verslag van 'n ondersoek deur die Afdeling Professionele Ontwikkeling. Buro vir Universiteitsonderwys van die Oranje Vrystaat, sj.

13 Human Sciences Research Council. *Education for children with special educational needs.* Report of the work committee, investigation into education, Pretoria, 1981.

14 Jooste J M Onderwysvoorsiening vir hoogbegaafde leerlinge in Transvaal. *Onderwysbulletin*, Transvaalse Onderwysdepartement, jrg 25, no 2,

Augustus 1981, pp 4 - 10.

15 Kachelhoffer P M Is universiteitsonderrig doeltreffend? *UP-Dosent*, jrg 5, nr 1, Januarie 1984, pp 32 - 40.

16 Komitee van Universiteitshoofde Universiteite onder die soeklig. *Nuusbrief* 2.1, April 1977, pp 4 - 6.

17 Komitee van Universiteitshoofde *Die oorgang van skool na universiteit.* Gepubliseerde verrigtinge van die Nasionale Simposium (KUH), Pretoria, 18 - 19 September 1978.

18 Mager R F *Preparing objectives for programmed instruction.* Fearon Publishers, Inc., 1962.

19 Marais F A J Project Advance. *Bulletin vir Dosente*, jrg 14, nr 1, Julie 1981, pp 61 - 65.

20 Meyer J H F Improving university didactics. *Die oorgang van skool na Universiteit.* Gepubliseerde verrigtinge van die Nasionale Simposium (KUH), Pretoria 18 - 19 September 1978.

21 Morgan H J, Tennant C G *and* Gold M J *Elementary and secondary level programs for the gifted and talented.* Teachers College, Columbia university , New York and London, 1980.

22 Neethling K *Die begaafde kind.* Human & Rousseau, Kaapstad/Pretoria, 1984.

23 Raad vir Geesteswetenskaplike Navorsing. *Onderwysvoorsiening in die R S A.* Verslag van die Hoofkomitee van die RGN-ondersoek na die onderwys, Pretoria, Julie 1981.

24 Renzulli J S The enrichment triad model: A guide for developing de= fensible programs for the gifted and talented. *The gifted child quarterly*, vol 20, no 3, 1976, pp 303 - 326.

25 Renzulli J S The enrichment triad model: A plan for developing defen= sible programs for the gifted and talented. *The gifted child quar= terly*, vol 21, no 2, 1977, pp 227 - 233.

26 Renzulli J S What makes a problem real: Stalking the illusive meaning of qualitative differences. *Gifted child quarterly*, vol 26, no 4, 1982, pp 147 - 156.

27 Roos W L *Die intellektueel superieure seun wat skolasties swak presteer: 'n Vergelykende studie.* Suid-Afrikaanse instituut vir mannekragnavor= sing, verslag MT 48, RGN, 1980.

28 Spargo P 'n Paar gedagtes in verband met begaafde studente. *Didaskalia*,

jrg 3, nr 2, Junie 1980, pp 30 - 33.

29 Stewart E Myth: One program, indivisible for all! *Gifted child quarterly*, vol 26, no 1, 1982, pp 27 - 28.

30 Taylor C A Die didaktiese bedryf aan universiteite. Geïndividualiseerde studiesisteme. *Die oorgang van skool na universiteit*. Gepubliseerde verrigtinge van die Nasionale Simposium (KUH), Pretoria 18 - 19 September 1978, pp 162 - 175.

31 Van der Stoep F *en* Louw W J *Inleiding tot die didaktiese pedagogiek*. Academica, Pretoria/Kaapstad, 1978.

32 Van der Walt J S 'n Vergelykende studie tussen kreatiwiteit en intelligensie en kreatiwiteit en skolastiese prestasie. *Monografieë van die sielkundige instituut van die republiek van Suid-Afrika*, nr 209, September 1976.

33 Wyatt F Responsibility for gifted learners — A plea for the encouragement of classroom teacher support. *Gifted child quarterly*, vol 26, no 3, 1982, pp 140 - 143.